

PATENT ABSTRACTS OF JAPAN(11)Publication number : **2000-275834**(43)Date of publication of application : **06.10.2000**

(51)Int.Cl.

G03F 7/038**B41N 1/14****G03F 7/00****G03F 7/004****G03F 7/32**(21)Application number : **11-081662**(71)Applicant : **DAINIPPON INK & CHEM INC**(22)Date of filing : **25.03.1999**(72)Inventor : **WATANABE YASUYUKI
SAITO NAOTO
SHIMIZU SHINJI
KOJIMA YASUHIKO
OE KOJI****(54) PHOTSENSITIVE COMPOSITION, ORIGINAL PLATE OF PRINTING PLATE AND IMAGE FORMING METHOD**

(57)Abstract:

PROBLEM TO BE SOLVED: To obtain a photosensitive composition capable of image writing with laser light in the near infrared region, not requiring heating before the development of a latent image and having good shelf stability and to obtain a computer-to-plate(CTP) printing plate capable of a direct photomechanical process from a digital signal of a computer or the like, capable of utilizing a conventional developing apparatus and capable of utilizing a conventional printer in printing as it is.

SOLUTION: The photosensitive composition contains an aqueous resin having a blocked isocyanate group and an IR absorber. A photosensitive layer comprising the photosensitive composition is disposed on a substrate to obtain the objective original plate of a printing plate. An image is formed with laser light on the photosensitive layer of the original plate and developed with a basic aqueous solution or water to form the objective image.

LEGAL STATUS

[Date of request for examination]

[Date of sending the examiner's decision of rejection]

[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]

[Date of final disposal for application]

[Patent number]

[Date of registration]

[Number of appeal against examiner's decision of rejection]

[Date of requesting appeal against examiner's

decision of rejection]

[Date of extinction of right]

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CLAIMS

[Claim(s)]

[Claim 1] The photosensitive constituent containing the water resin and infrared-absorption agent which have the blocked isocyanate machine.

[Claim 2] The photosensitive constituent according to claim 1 whose water resin is a resin particle dispersing element.

[Claim 3] The photosensitive constituent according to claim 2 with which internal bridge formation of the particle is carried out.

[Claim 4] The printing version original edition characterized by having the photosensitive layer which consists of a constituent given in any 1 term of claims 1-3 on a base material.

[Claim 5] The image formation method characterized by developing negatives using basic solution or basic water after using a laser beam for the photosensitive layer of the printing version original edition according to claim 4 and forming a picture in it.

[Claim 6] The image formation method according to claim 5 using the laser beam which has the maximum intensity in the range of 760-3000nm.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[The technical field to which invention belongs] this invention relates to the photosensitive constituent which uses the light of a near infrared region. In more detail, a latent image is acquired by irradiation of the high power type laser beam of a near infrared region, and it is related with the photosensitive constituent with which a picture is formed by developing this using basic solution or basic water. The photosensitive constituent of this invention is broadly used for the use of the resist for light filters, the resist for printer substrates, a color proof, etc. moreover, the printing original edition of this invention is used as the so-called computer toeplate (CPT) version which can carry out direct platemaking from the digital signal especially according to a computer etc. as the lithography version original edition which is an offset-printing field and is used

[0002]

[Description of the Prior Art] In recent years, the method of writing a picture in a direct photosensitivity constituent from a digital signal has been developed with progress of a computer image processing technique. This system is used for the lithography version and the computer toeplate (CPT) system which forms a picture in a direct plate attracts attention, without performing the output to a silver salt mask film. what is depended on the xerography which used ** light laser as such a system, the thing to depend on the exposure and after treatment by ** light laser, and ** -- what is depended on the exposure and after treatment by near-infrared high power type laser, the thing using the diffusion transfer of ** silver salt, and ** electric discharge and a high power type laser beam A mask layer is prepared on what is depended on destroying a silicone rubber layer, and the lithography version (PS plate) with a cambium with the photosensitive picture layer from ** former, image formation is carried out to a mask layer, and what obtains the printing version through after treatment is known. Although there are merits and demerits also in which [these] method and the further examination is continued Especially in it, since the laser of that faults, such as dotage and adhesion of dust, are lost that the handling by the Ming room is possible and by skipping the process accompanying the picture imprint from the silver salt mask film from the former and compact high power can receive the plate by the system of ** easily, it attracts attention from the picture of high resolution being acquired by short-time exposure etc.

[0003] as a printing plate which uses high power laser of a near infrared region as the light source, although the plate based on hot printing technology is proposed by JP,7-214744,A, the 7-281423 official report, and the 9-156069 official report, picture resolution is not necessarily enough for them, and printing durability and the repeatability accompanying a picture imprint are inadequate for them -- etc. -- it was not the system can be satisfied [with the repeatability or printing adaptability of a picture] of a system

[0004] Moreover, although the creation method of the printing plate by the exfoliation developing-negatives method is indicated by JP,7-244373,A, a 8-48020 official report, a 8-267701 official report, the 8-292556 official report, the 9-29925 official report, the 9-109352 official report, and the 9-123383 official report after carrying out picture exposure, wetting of the hydrophilic portion which a defect

produces, without necessarily performing exfoliation development completely don't be enough, and face generating and printing of a greasing. It was not the system can be satisfied [with the repeatability or printing adaptability of a picture] of a system like [that water risers run short etc.] hot printing technology.

[0005] Although the system without a wet developing is indicated by JP,7-186562,A, a 8-99477 official report, a 8-108660 official report, a 9-141819 official report, a 9-171249 official report, a 9-171250 official report, a 9-236926 official report, the 10-16423 official report, the 10-26834 official report, the 10-29292 official report, and the Japanese patent No. 2530448 official report further again Although the resolution of a picture was excellent, it was not the thing which Blanc dirt generates on the occasion of printing and which can be satisfied from the point of that the landing of ** is bad and water cannot be wrung, printing durability running short of.

[0006] As mentioned above, at present, the present condition is that a certain practical problem has arisen on the occasion of printing in the system without a wet developing as after treatment after picture exposure. Then, although the plate constituted from a resin which has a diazonium machine, and carbon black by JP,7-306528,A and the 7-179292 official report as the lithography version original edition accompanied by development without such a problem was indicated, because of the existence of a diazonium machine, preservation stability was bad and was not practical.

[0007] Moreover, although the method of using a quinone diazide compound and obtaining a printing plate by optical irradiation covering 2 times, the exposure and UV beam-of-light complete exposure by the near-infrared-ray laser beam, was indicated by JP,9-274317,A, there was a problem that sensitivity was low and it was necessary to perform an exposure scan twice.

[0008] Further again JP,7-20629,A, a 7-271029 official report, A 8-234426 official report, a 9-185160 official report, a 9-197668 official report, A 9-197671 official report, a 9-202873 official report, a 9-208925 official report, A 9-221652 official report, a 9-221654 official report, a 9-176112 official report, A 9-183960 official report, a 9-183961 official report, a 9-222731 official report, Although the plate which used the acid generating matter by heat for a 9-239945 official report, the 9-244226 official report, the 9-244233 official report, the 10-142780 official report, and the 10-228109 official report is indicated In order to complete the cationic polymerization reaction accompanying acid generating which has a problem in acid generating conservation-of-matter stability. The front stirrup of exposure needed heat-treatment later, therefore had practical problems, like a problem arises in the repeatability of a half tone dot.

[0009]

[Problem(s) to be Solved by the Invention] Picture writing is possible for the first technical problem which this invention tends to solve at the laser beam of a near infrared region, and the preservation stability which does not need the heat-treatment before developing a latent image is to offer a good photosensitive constituent.

[0010] Moreover, the second technical problem which this invention tends to solve is to offer the computer toeplate (CPT) version which can fill the first technical problem of the above, digital signals, such as a computer, to direct platemaking is possible, and can moreover use the further conventional processing equipment, and can use the conventional printer as it is also in printing.

[0011]

[Means for Solving the Problem] That this invention persons should solve the above-mentioned technical problem, as a result of repeating examination wholeheartedly, as a mechanism of the write-in image formation by the high-density energy light to a photosensitive constituent layer The polymerization reaction by the light energy and monomers using a photopolymerization initiator or a photo-oxide generating agent, such as the so-called PS plate, (negative-mold PS plate), Or it replaces with the conventional mechanism in which only the chemical reaction like reforming (positive-type PS plate) accompanying the partial decomposition reaction of the polymer by the light energy was used. While the aqueosity resin of the picture section fuses and/or welds mutually with the heat generated by absorption of a light energy When an aqueosity resin carries out a condensation reaction, the latent image was formed, and by flooding this latent image with processing liquid, the new method of carrying out

dissolution removal and developing the non-picture section is found out, and it came to complete this invention.

[0012] That is, this invention offers the photosensitive constituent containing the aquosity resin and infrared-absorption agent which have the isocyanate machine by which (I) blocking was carried out, in order to solve the above-mentioned technical problem.

[0013] Moreover, this invention offers the printing version original edition which has the photosensitive layer which consists of the photosensitive constituent containing the aquosity resin and infrared-absorption agent which have the blocked isocyanate machine on a base material, in order to solve the above-mentioned technical problem.

[0014] Furthermore, in order to solve the above-mentioned technical problem, after this invention uses a laser beam for the photosensitive layer of the printing version original edition which has the photosensitivity containing the aquosity resin and infrared-absorption agent which have the isocyanate machine blocked (III) and forms a picture in it, it offers the image formation method developed using basic solution or basic water.

[0015]

[Embodiments of the Invention] The aquosity resin which has the blocked isocyanate machine which is used by this invention has the blocked isocyanate machine, and means the resin which is in water at dissolution / distribution state.

[0016] the method of creating and aquosity-izing as a method of preparing the aquosity resin which has the blocked isocyanate machine, for example, while carrying out the polymerization of the resin underwater -- it compounded -- it is -- it is -- two of the methods of aquosity-izing a certain resin beforehand are mentioned As a method by the former, an emulsion-polymerization method, a soap free emulsion-polymerization method, etc. are mentioned, and the grinding method for grinding a massive macromolecule as the latter method and obtaining a particle, the emulsifying method make a resin emulsify using an emulsifier, the method of making water dissolve and distribute the resin which has a hydrophilic radical, etc. are mentioned.

[0017] Since it is difficult, as for using for the photosensitive constituent of this invention, it is unsuitable to obtain a uniform particle 1 micrometer or less by the grinding method. On the other hand, although an emulsifier remains by the emulsion-polymerization method and the emulsifying method, since sensitivity, ink adhesion, etc. are affected depending on the kind and the amount of the emulsifier used, sufficient consideration is required for selection of an emulsifier. Moreover, since the method of on the other hand dissolving and distributing underwater the resin which has a hydrophilic radical can change easily the dissolution in the water of not using an emulsifier, that various functional groups can be introduced into the resin before the dissolution / distribution, and a resin, or a distributed state, it is excellent as a manufacturing method of the photosensitive constituent of this invention.

[0018] The method of obtaining the resin which has hereafter both the isocyanate machines and hydrophilic radicals that were blocked is explained in full detail.

[0019] Although an anionic machine, a cation nature machine, and a Nonion nature machine are mentioned, when it takes into consideration using water or an alkaline developer, for example as a developer as a hydrophilic radical in the resin which has both the isocyanate machines and hydrophilic radicals that are used by this invention, and that were blocked, as for a hydrophilic radical, it is desirable that they are an anionic machine and a Nonion nature machine. Generally, since an alkaline developer is used as a developer, it is desirable that a hydrophilic radical is an anionic machine in that case.

[0020] What is necessary is to copolymerize the polymerization nature monomer which has the polymerization nature monomer which has an acid radical, and the blocked isocyanate machine by the method of well-known common use with the polymerization nature monomer constituent which contains other polymerization nature vinyl groups if needed, and just to carry out initial-complement neutralization by the base, when considering as the resin which has both the isocyanate machines and hydrophilic radicals that were blocked and using anionic acrylic resin.

[0021] A blocking agent dissociates the photosensitive constituent of this invention with the heat generated by irradiation of a laser beam, and a functional group carries out the addition reaction of the

isocyanate and active hydrogen which separated. Or the isocyanate machine and hydroxyl group which were blocked carry out an alcoholysis reaction with the heat generated by irradiation of a laser beam. Or the blocked isocyanate machine, the 1st class, and/or the 2nd class amino group carry out an aminolysis reaction with the heat generated by irradiation of a laser beam again. Although an aqueous resin is bridge-formation-ized by such reaction, in order to perform this crosslinking reaction promptly, it is desirable to have the functional group which has active hydrogen in this resin, for example, a hydroxyl group, the 1st class, the 2nd class amino group, etc. In this case, what is necessary is just to carry out initial-complement neutralization by the base, after adding the polymerization nature monomer which has the functional group which has active hydrogen to the polymerization nature monomer constituent described previously and carrying out copolymerization to it by the method of well-known common use. Also in the polymerization nature monomer which has the functional group which has these active hydrogen, composition of a resin can use preferably the polymerization nature monomer which has a hydroxyl group like 2-hydroxyethyl (meta) acrylate and 2-hydroxypropyl (meta) acrylate from an easy point, for example.

[0022] The vinyl monomers which have a carboxyl group like an acrylic acid (meta), a crotonic acid, an itaconic acid, a maleic acid (anhydrous), a fumaric acid, itaconic-acid monobutyl, and maleic-acid monobutyl as a polymerization nature monomer which has an acid radical, for example; the vinyl monomers which have a sulfuric-acid machine like the vinyl monomer; 2-sulfoethyl (meta) acrylate which has the sulfonic group like a vinyl monomer; 2-chloro-acrylamide-isobutane sulfonic acid which has a phosphoric-acid machine like acid phosphoxyethyl metacrylate are mentioned.

[0023] As for the polymerization nature monomer which has these acid radicals, it is desirable per 100g of monomer constituents at the time of a polymerization to use it in the range of nine to 530 millimole in general. Even if the polymerization nature monomer which has an acid radical neutralizes completely in the neutralization process after compounding a resin in less than nine millimole per 100g of monomer constituents at the time of a polymerization, since the hydrophilic property of a resin is in the inclination for composition to become difficult substantially when the distributed stability to water is in the inclination which changes low and the acid number exceeds 300 millimole by the low's, it is not desirable.

[0024] What blocked the polymerization nature monomer which has simultaneously the acryloyl machine and isocyanate machine like an addition product (meta) of a methacryloyl isocyanate, 2-methacryloiloxy-ethyl isocyanate, 2-hydroxyethyl (meta) acrylate or 2-hydroxypropyl (meta) acrylate, and a diisocyanate compound by various blocking agents as a monomer which has a blocking isocyanate machine, for example is mentioned.

[0025] As a diisocyanate compound used for condensation with 2-hydroxyethyl (meta) acrylate or 2-hydroxypropyl (meta) acrylate For example, 2, 4-tolylene diisocyanate, 2, 6-tolylene diisocyanate, m-phenylene diisocyanate, p-phenylene diisocyanate, 4 and 4-diphenylmethane diisocyanate, 2, 4-diphenylmethane diisocyanate, The 2 and 2-diphenylmethane diisocyanate, 3, and 3-dimethyl -4, 4-biphenylene di-isocyanate diphenylmethane diisocyanate, Aromatic diisocyanate; like 3 and 3-dimethoxy -4, 4-biphenylene di-isocyanate, 3, and 3-dichloro -4, 4-biphenylene di-isocyanate, 1, and 5-naphthalene diisocyanate.

[0026] 5-tetrahydronaphthalene diisocyanate, tetramethylene di-isocyanate, 1, 6-hexamethylene di-isocyanate, dodeca methylene di-isocyanate, Lysine diisocyanate, 1, 3-cyclohexylene diisocyanate, 1,4-cyclohexylenediisocyanate, isophorone diisocyanate, 4 and 4-dicyclohexylmethane diisocyanate, xylylene diisocyanate, Tetramethyl xylylene diisocyanate, trimethyl hexamethylene di-isocyanate, The aliphatic diisocyanate or cycloaliphatic diisocyanate like the hydrogenation xylylene diisocyanate (hydrogenation xylylene diisocyanate), 3, and 3-dimethyl -4 and 4-dicyclohexylmethane diisocyanate etc. is mentioned.

[0027] A well-known thing can be used as a blocking agent. For example, an acetoxime, The oximes like a butanone oxime and a cyclohexanone oxime; A phenol, Phenols like m-cresol and o-chlorophenol; A diethylamine, Amines like G n butylamine, N, and N-dimethylhydrazine; A methanol, Alcohols; N like ethanol, propanol, isopropyl alcohol, 2 and 2, and 2-truffe RUORO ethanol, N-

diethylhydroxylamine, The basic nitrogen content compound like a 2-hydroxy pyridine, a 3-hydroxy pyridine, a 4-hydroxy pyridine, and 8-hydroxyquinoline etc. is mentioned.

[0028] As for the monomer which has a blocking isocyanate machine, it is desirable per 100g of monomer constituents at the time of a polymerization to use it in the range of 1.5 to 300 millimole in general. in less than 1.5 millimole per 100g of monomer constituents at the time of a polymerization, the amount of the polymerization nature monomer used which has a blocking isocyanate machine is in the inclination to be in the inclination for the effect of bridge formation to change low, for the viscosity at the time of resin composition to become high if the amount of the polymerization nature monomer used which has a blocking isocyanate machine exceeds 300 millimole, and for composition to become difficult, and is not desirable

[0029] As a polymerization nature monomer containing other polymerization nature vinyl groups For example, a methyl acrylate (meta), an ethyl acrylate (meta), an acrylic-acid (meta) isopropyl, An acrylic-acid n-propyl, acrylic-acid (meta) n-butyl, (Meta) Acrylic-acid i-butyl, acrylic-acid (meta) t-butyl, acrylic-acid (meta) 2-ethylhexyl, (Meta) An acrylic-acid n-octyl, acrylic-acid (meta) lauryl, acrylic-acid (meta) stearyl, (Meta) Tridecyl acrylate, acrylic-acid (meta) cyclohexyl, (Meta) An acrylic-acid butoxy methyl, an acrylic-acid (meta) ethoxy diethylene glycol, (Meta) Acrylic-acid tetrahydrofurfuryl, acrylic-acid (meta) isobornyl, (Meta) An acrylic-acid benzyl, acrylic-acid (meta) hydroxymethyl, (Meta) The acrylic esters like acrylic-acid 2-hydroxyethyl and acrylic-acid (meta) 2-hydroxypropyl (meta); Styrene, (Meta) An alpha methyl styrene, o-methyl styrene, m-methyl styrene, p-methyl styrene, The boletic acid ester like the maleates; boletic acid dimethyl like the itaconic-acid ester; maleic-acid dimethyl like the styrene system monomer; itaconic-acid benzyl like p-tert-butyl styrene and p-hydroxy styrene; Vinyl acetate, The polymerization nature nitril like vinyl-esters; (meta) acrylonitrile like a benzoic-acid vinyl, a BASA tic acid vinyl, and a propionic-acid vinyl; (meta) an acrylamide, allyl alcohol, etc. are mentioned.

[0030] Although various methods, such as a bulk polymerization and solution polymerization, can be used for the polymerization method of the above-mentioned polymerization nature monomer constituent, simple solution polymerization is desirable and, as for the solvent to be used, it is desirable to use an organic solvent. Although it will not be limited as an organic solvent especially if a polymerization nature monomer and the polymer obtained can be dissolved, the alcohols like benzene, toluene, the aromatic-hydrocarbons; acetone like a xylene, a methyl ethyl ketone, a methyl isobutyl ketone or the ketones; ethyl acetate like a cyclohexanone, the ester; methanol like butyl acetate, ethanol, and isopropyl alcohol etc. are mentioned, for example. Two or more kinds can also be mixed and used for these organic solvents. Also in these organic solvents, it dissolves and distributes easily at a next process at water, and in comparison, use of water and an affinitive solvent is desirable, and use of the solvent of the low boiling point with easy removing an organic solvent is desirable. As such a solvent, an acetone, a methyl ethyl ketone, and ethyl acetate are mentioned.

[0031] The **** peroxide system polymerization initiator of KISANOETO etc. is mentioned to the azo system polymerization initiator; benzoyl peroxide like 2 and 2-azobisisobutyronitril, 2, and 2-azobis (2,4-dimethylvaleronitrile), lauryl peroxide, and tert-butylperoxy 2-ethyl that a well-known radical polymerization initiator should just be used for the polymerization initiator used in the case of solution polymerization.

[0032] An acid anhydride can be made to be able to add to the polymer which has a hydroxyl group besides the method of introducing an acid radical at the time of a polymerization as a synthesis method of anionic acrylic resin, as mentioned above, and an anionic machine can also be introduced into the acrylic resin after a polymerization, such as carrying out initial-complement neutralization by the base subsequently. Similarly, the functional group in which a cross linking agent and a reaction are possible can also be introduced into the resin after a polymerization.

[0033] Although the photosensitive constituent of this invention is dried in a dryness process after it is applied on a base material, in order for resin particles not to start thermal denaturation, such as weld, in this dryness process, as for the glass transition temperature of the aquosity resin used by this invention, it is desirable that it is 40 degrees C or more. Moreover, since it is not accompanied by thermal

denaturation, such as weld of resin particles, when the mothball in an elevated temperature is required, as for the glass transition temperature of the aqueosity resin of this invention, it is desirable that it is 50 degrees C or more.

[0034] Although the aqueosity resin which has the blocked isocyanate machine changes with the structure of a resin, composition, etc., it neutralizes in general 5 - 120% of the acid radical (equivalent) contained in a resin by the base, and turns into a resin which has a hydrophilic property by making the neutralization acid number into the range of 5-300. Moreover, a resin can be dissolved underwater or it can be made to distribute by changing this degree of neutralization. Use is desirable although the resin was distributed as an aqueosity resin used by this invention when preservation stability and development nature were taken into consideration. Such a resin is the water dispersing element of a 0.005-1 micrometer (micrometer) resin particle. Such a water dispersing element can be obtained by making the neutralization acid number into the range of 5-200 in general. It can more specifically distribute by the ability changing various neutralization acid numbers, and the neutralization acid number can be freely changed from the neutralization acid number dissolved completely between the neutralization acid numbers which a resin can distribute stably.

[0035] As a base used for neutralization, the amines; aqueous ammonia like the hydroxide; triethylamine of the alkali metal like a sodium hydroxide and a potassium hydroxide, tributylamine, a triethanolamine, and a dimethylethanolamine etc. is mentioned, for example.

[0036] Thus, the resin which has both the functional groups and hydrophilic radicals that were obtained, and in which a cross linking agent and bridge formation are possible becomes water with an aqueosity resin by dissolving and distributing. In case it dissolves and distributes at water, as for that the viscosity of a system generally increases temporarily, and improvement in workability to this resin, it is desirable to dilute and use so that a solid content may become 5 - 60% by the organic solvent.

[0037] Although the method of adding water to this resin slowly is common in case the resin which has both the functional groups and hydrophilic radicals in which a resin cross linking agent and bridge formation are possible is dissolved and distributed to water, depending on the case, you may add this resin solution to water. Furthermore, the water which contains a neutralizer in the resin which has the acid radical which is the precursor of this resin may be added, and the resin solution which has the acid radical which is the precursor of this resin may be added to the water containing a neutralizer.

[0038] Even if the thing of well-known common use is usable and agitates the churning equipment used in case the resin which has both the functional groups and hydrophilic radicals in which a cross linking agent and bridge formation are possible is dissolved and distributed to water with usual churning equipment, a disperser which gives shearing force, such as an emulsification disperser, may be used for it.

[0039] Although the aqueosity resin used by this invention is obtained as a water dispersing element containing the organic solvent in early stages, whether it uses as it is, or carries out reduced pressure distilling off of the organic solvent and uses as a water dispersing element, it may remove the organic solvent and water and they may be used for it as fine particles.

[0040] Furthermore, when you use a resin water dispersing element as an aqueosity resin used by this invention (i.e., when using a resin particle water dispersing element), let this resin particle be the bridge formation resin particle which constructed the bridge. In order to create a bridge formation resin particle, it is introducing the functional group for the bridge formation in a particle like a glycidyl group into the resin which has a hydrophilic radical beforehand, and/or can consider as the bridge formation resin particle which formed the inside of a resin particle into three-dimensions bridge formation by adding the cross-linking compound of the third component, and can use for improvement in printing durability and preservation stability, adjustment of sensitivity, etc.

[0041] the third component -- cross-linking -- a compound -- ***** -- for example -- N -- N -- N -- ' -- N -- ' -- -- tetraglycidyl ether -- -- m -- -- the xylylene -- a diamine -- bisphenol A -- type -- an epoxy resin -- a phenol -- a system -- an epoxy resin -- glycidyl methacrylate -- a copolymer -- a carboxylic acid -- glycidyl -- an ester resin -- alicyclic -- epoxy -- like -- polyfunctional -- glycidyl -- a compound -- mentioning -- having -- these -- cross-linking -- a compound -- a hydrophilic radical -- having -- a resin

In this case, since the direction which removed the organic solvent before applying heat can prevent weld of resin particles, it is more desirable. It can pass over the constructing-bridge method illustrated here only to a part very much, but the technique of constructing a bridge by underwater [well-known] can be used for it.

[0042] The range of 1.5 to 300 millimole is suitable for the amount of the cross-linking functional group which constructs a bridge in the inside of a particle per 100g of resins. Since the film formation nature of the obtained resin particle is in the inclination which stops being able to form a photosensitive constituent layer easily by becoming low when it is in the inclination for the effect of bridge formation not to be acquired when there are few amounts of a cross-linking functional group than 1.5 millimole and exceeds 300 millimole, it is not desirable.

[0043] The matter which the infrared-absorption agent used by this invention absorbs light in a photosensitive constituent layer, and generates heat is pointed out, and various pigments or colors are mentioned as such matter, for example.

[0044] As a pigment used by this invention, the pigment indicated by a commercial pigment and a Color Index handbook "the volume on newest pigment handbook Japan pigment technical association and 1977 annual publications", the "newest pigment applied technology" (CMC publication, 1986 annual publications), "printing ink technology" (CMC publication, 1984 annual publications), etc. can be used. As a kind of pigment, black pigment, a yellow pigment, an orange pigment, brown pigments, red pigments, a purple pigment, blue pigment, the green, fluorescent pigment and other polymer joint coloring matter, etc. are mentioned. Specifically, insoluble azo pigment, an azo lake pigment, a disazo condensation pigment, a chelate azo pigment, a phthalocyanine system pigment, an anthraquinone system pigment, a perylene and a peri non ** pigment, a thioindigo system pigment, a Quinacridone system pigment, a dioxazine system pigment, an isoindolinone system pigment, a kino FUTARON system pigment, a blue-and-white porcelain lake pigment, an azine pigment, an oximido pigment, a nitro pigment, a natural pigment, a fluorescent pigment, an inorganic pigment, carbon black, etc. can be used. The light of a near-infrared-ray field is absorbed also especially in these, heat is generated efficiently, and carbon black is preferably used as matter which was moreover economically excellent. moreover, what the good graft-ized carbon black of the dispersibility which has various functional groups is marketed, for example, is indicated by 167 pages of "the 3rd edition of a carbon black handbook" (the volume on carbon black association, 1995), 111 etc. pages of "the property of carbon black, the optimal combination, and use technology" (a technical-information association, 1997), etc. is mentioned, and each is used suitable for this invention

[0045] These pigments may be used, without carrying out surface treatment, and well-known surface treatment may be performed and used, and the method of combining with a pigment front face the method of carrying out the surface coat of a resin or the wax, the method to which a surfactant is made to adhere, a silane coupling agent and an epoxy compound, and the active substance like the poly isocyanate as the well-known surface treatment method etc. is mentioned. These surface treatment methods are indicated by "the property of a metallic soap, application" (Saiwai Shobo Co., Ltd.), the "newest pigment applied technology" (CMC publication, 1986 annual publications), and "printing ink technology" (CMC publication, 1984 annual publications).

[0046] As for the particle size of the pigment used by this invention, it is desirable that it is in the range of 0.01-15 micrometers, and it is still more desirable that it is in the range which is 0.01-5 micrometers.

[0047] the thing of well-known common use can be used for the color which can be used for this invention, for example, it is indicated by "the volume a "color handbook" (edited by Society of Synthetic Organic Chemistry, Japan, Showa 45 annual publications), a "color-material engineering handbook" (edited by Japan Society of Colour Material, Asakura Publishing Co., Ltd., 1989 annual publications), "the technology and the commercial scene" (CMC, 1983 annual publications) of industrial use coloring matter, and on chemistry handbook applied chemistry" (the edited by Chemical Society of Japan, the Maruzen bookstore, 1986 annual publications) -- a thing is mentioned More specifically, the color like azo dye, metal **** azo dye, pyrazolone azo dye, an anthraquinone dye, a phthalocyanine dye, a cull BONIUMU color, a quinonimine dye, a methine dye, cyanine dye, an indigo color, quinoline

dye, a nitro ** color, a xanthene system color, a thia gin system color, an azine dye, and an oxazine color is mentioned. Also in these colors, especially the thing that absorbs near-infrared shell infrared light is desirable. As a color which absorbs near-infrared light or infrared light For example, JP,58-125246,A, a 59-84356 official report, The cyanine dye indicated by the 59-202829 official report, the 60-78787 official report, etc., The methine dye indicated by JP,58-173696,A, the 58-181690 official report, the 58-194595 official report, etc., A Provisional-Publication-No. No. 112793 [58 to] official report, a 58-224793 official report, this No. 48187 [59 to] official report, The naphthoquinone color indicated by the 59-73996 official report, the 60-52940 official report, the 60-63744 official report, etc., The SUKUWARIRIUMU coloring matter indicated by JP,58-112792,A etc., the cyanine dye indicated by the British patent No. 434875 official report, the near-infrared absorbent indicated by the U.S. Pat. No. 5156938 specification are mentioned. Furthermore, the replaced ARIRUBENZO (thio) pyridinium salt which is indicated by the U.S. Pat. No. 3881924 specification, The TORIME tin thia pyrylium salt indicated by JP,57-142645,A, JP,58-181051,A, a 58-220143 official report, a 59-146063 official report, The pyrylium system compound indicated by the 59-146061 official report etc., The cyanine dye indicated by JP,59-216146,A, the pentamethine thio pyrylium salt indicated by the U.S. Pat. No. 4283475 specification, The pyrylium compound indicated by JP,5-13514,B and the 5-19702 official report, the near-infrared absorption color indicated by the U.S. Pat. No. 4756993 specification are mentioned.

[0048] The specific wavelength of the light source of high power mentioned later is absorbed out of the above-mentioned pigment or a color, and it can be used by choosing at least one sort and adding the suitable pigment or suitable color which can be changed into heat in a photosensitive constituent layer.

[0049] When using a pigment as an infrared-absorption agent, the amount of the pigment used has 1 - 70% of the weight of a desirable range to the total solid of a photosensitive constituent layer, and 3 - 50% of the weight of especially its range is desirable. Since it is in the inclination it to become difficult to form a suitable melting latent image not to become melting and sufficient heating value to construct a bridge about the particle which lives together even if it absorbs light and generates heat, when there are few additions than 3 % of the weight, but for there to be too many heating values generated when there are more additions than 50 % of the weight, and for phenomena, such as combustion and destruction, occur, and form a picture, it is not desirable.

[0050] As an infrared-absorption agent, when using a color, the amount of the color used has 0.1 - 30% of the weight of a desirable range to the total solid of a photosensitive constituent layer, and 0.5 - 20% of the weight of especially its range is desirable. Since it is in the inclination which does not serve as sufficient heating value to fuse the resin which lives together even if it absorbs light and generates heat, when there are few additions than 0.5 % of the weight, but the heating value generated when there are more additions than 20 % of the weight gives to saturation substantially, and the effect of addition does not go up, it is not desirable.

[0051] The printing version original edition of this invention can be manufactured by making it dry, after applying photosensitive constituent layer application liquid on a base material. Photosensitive constituent layer application liquid can be created by mixing with a cross linking agent, after making an aqueous resin solution (distributed liquid) distribute a pigment or a color. Moreover, after making the mixed solvent of water or water, and the organic solvent distribute a pigment or a color, it can also create by blending with an aqueous resin and a cross linking agent. Furthermore, after making the resin solution before aqueous-izing distribute a pigment or a color, water can be distributed, and photosensitive constituent layer application liquid can be made into the particle (particle which encapsulated the color or the pigment) which contains a pigment or a color inside, and can also be created also by subsequently mixing with a cross linking agent.

[0052] As a disperser used in case a pigment or a color is distributed, the thing of well-known common use can be used, for example, an ultrasonic disperser, a sand mill, attritor, a bar mill, a super mill, a ball mill, an impeller, the De Dis parser, KD mill, a colloid mill, a dynatron, 3 roll mills, a pressurized kneader, etc. are mentioned. moreover, the organic solvent may be used together at this time, in that case, use of the organic solvent of the low melting point which may be dissolved in water and

homogeneity is desirable, and, specifically, the aromatic hydrocarbons like the ketones; ethyl acetate like the alcohols; acetone like a methanol, ethanol, n-propyl alcohol, isopropyl alcohol, n-butanol, a sec-butanol, and t-butanol, a methyl ethyl ketone, and a methyl isobutyl ketone, the ester; toluene like butyl acetate, and a xylene are mentioned to it

[0053] Furthermore, in the photosensitive constituent layer of this invention, a meltable resin, an acid generator, a dissolution regulator, etc. can also be added at alkaline solution, such as a phenol nature novolak and an acrylic-acid (meta) system resin, if needed.

[0054] Thus, the prepared photosensitive constituent layer application liquid can add the water-soluble organic solvent like the various natural-water solubility macromolecules for the various assistants of the sake on an application disposition, for example, viscosity control, a synthetic water soluble polymer, a methanol, ethanol, isopropyl alcohol, an acetone, a methyl ethyl ketone, ethyl acetate, ethylene glycol, and a propylene glycol, various surfactants, a film formation assistant, etc.

[0055] Photosensitive constituent application liquid is applied on a base material by the method of well-known common use, after the solid-content ratio in an application solution is preferably adjusted to 1 - 50% of the weight. Specifically as the method of application, the rotation applying method by the spin coater etc., the DIP applying method, the roll applying method, the curtain applying method, the blade applying method, the air knife applying method, the spray applying method, the bar coating-machine applying method, etc. are mentioned.

[0056] A photosensitive constituent layer is formed by drying the photosensitive constituent layer application liquid applied on the base material as mentioned above in ordinary temperature. In order to make it dry more for a short time, it is desirable to make it dry for [10 seconds -] 10 minutes at 30-150 degrees C using a warm air dryer, a ultrared ray dryer, etc.

[0057] After a picture is written in the photosensitive constituent layer of this invention by the high power type laser of a near infrared region, the non-picture section is removed by the development with a wet method. The developer used for a development is acid solution or alkaline solution. When the corrosion of a base material etc. is taken into consideration, generally use of the alkaline solution using alkali chemicals is desirable. As high power type laser of a near infrared region, the various laser which has the maximum intensity, for example, semiconductor laser, an YAG laser, etc. are mentioned to a 760nm - 3000nm near infrared region.

[0058] Hereafter, the case where the photosensitive constituent of this invention is applied to the lithography version original edition is explained.

[0059] What is necessary is just to prepare the photosensitive constituent of this invention on the base material which has a hydrophilic front face, when applying the photosensitive constituent of this invention to the lithography version original edition. That is, the lithography version original edition can be created by applying and drying photosensitive constituent layer application liquid, as mentioned above on the base material which has a hydrophilic front face.

[0060] As such a base material, the composite material which prepared the metal layer with technology, such as vacuum deposition or a lamination, is mentioned to the paper which applied a melting application or synthetic-resin liquid for the plastic film; synthetic resin like aluminum, zinc, copper, stainless steel, the metal plate; polyethylene-glycol terephthalate (PET) like iron, a polycarbonate, a polyvinyl acetal, and polyethylene, or plastic film, for example. Use of the compound base material with which especially aluminum and aluminum were covered is [among these] desirable.

[0061] As for the front face of an aluminum base material, it is desirable to carry out surface treatment in order to raise water retention and to raise adhesion with a photosensitive layer. The split-face-ized method which methods, such as a brushing method, the ball grinding method, electrolytic etching, chemical etching, liquid honing, and sandblasting, and such combination are mentioned as the split-face-ized method, and includes especially use of electrolytic etching as such a surface treatment method, for example is desirable.

[0062] The electrolytic solution which the aquosity solution which contains the solution containing an acid, alkali, or those salts or the organic solvent as an electrolytic bath used in the case of electrolytic etching is used, and contains a hydrochloric acid, nitric acids, or those salts especially among these is

desirable. Furthermore, the desmut treatment of the aluminum plate to which split-face-ized processing was performed is carried out in the solution of an acid or alkali if needed. Thus, as for the obtained aluminum plate, it is desirable to carry out anode plate acid-number processing, and its method of processing by the bath which contains a sulfuric acid or phosphoric acid especially is desirable.

[0063] moreover, the silicate processing (a sodium silicate --) indicated by the U.S. Pat. No. 2714066 specification and this No. 3181461 specification if needed A potassium silicate, the fluoride zirconic-acid potassium processing indicated by the U.S. Pat. No. 2946638 specification, The phospho MORIBU date processing indicated by the U.S. Pat. No. 3201247 specification, The alkyl titanate processing indicated by the British patent No. 1108559 official report, The polyacrylic-acid processing indicated by the German country patent No. 1091433 official report, The polyvinyl sulfonic-acid processing indicated by the German country patent No. 1134093 official report and the British patent No. 1230447 official report, The phosphonic acid processing indicated by JP,44-6409,B, the phytic-acid processing indicated by the U.S. Pat. No. 3307951 specification, Processing by the salt of the hydrophilic organic high molecular compound indicated by JP,58-16839,A and JP,58-18291,A and a divalent metal, What performed hydrophilicity-ized processing by the under coat of the water-soluble polymer which has the sulfonic group indicated by JP,59-101651,A, What performed coloring by the acid dye indicated by JP,60-64352,A, silicate electrodeposition indicated by the U.S. JP,3658662,B specification can be processed.

[0064] Moreover, what performed sealing is desirable after graining processing and the anode plate acid number. Sealing is performed in the immersing row to the hydrothermal solution containing hot water and mineral salt, or an organic salt by the steam bath etc.

[0065] Next, how to create a printing lithographic plate is explained using the printing version original edition of this invention.

[0066] The lithography version of this invention is the so-called computer toeplate (CPT) version by which picture writing is made based on the digital image information from a computer etc. on the direct version using high power type laser. As high power type laser which can form a picture in the printing version original edition of this invention, there are various semiconductor laser, an YAG laser, etc., and the specific wavelength of the light source to be used is absorbed, and it chooses from the pigment which mentioned above the suitable pigment or suitable color which can be changed into heat, or a color, and can be used by adding in a photosensitive constituent layer.

[0067] After a picture is written in the photosensitive constituent layer of the printing version original edition of this invention by high power type laser, the non-picture section is removed by the development with a wet method. Under the present circumstances, the developer used is the alkaline solution containing alkali chemicals, when the aquosity resin contained in a photosensitive constituent layer has an anionic machine.

[0068] As alkali chemicals used for the developer of the printing version original edition of this invention For example, a sodium silicate, a potassium silicate, a potassium hydroxide, a sodium hydroxide, the [a lithium hydroxide, the second, or] -- the sodium of 3 phosphoric acids, a potassium, or an ammonium salt -- A meta-sodium silicate, a sodium carbonate, the inorganic alkali compound like ammonia; Monomethylamine, A dimethylamine, a trimethylamine, a monoethyl amine, a diethylamine, The organic alkali compound like a triethylamine, a monochrome isopropylamine, diisopropylamine, n butylamine, G n butylamine, a monoethanolamine, a diethanolamine, a triethanolamine, ethyleneimine, and ethylenediamine is mentioned.

[0069] The content of the alkali chemicals in a developer has 0.005 - 10% of the weight of a desirable range, and 0.05 - 5% of the weight of especially its range is desirable. Since it is in the inclination for development to become poor, and it is in the inclination which does the bad influence of corroding an image formation layer at the time of development when [than 10 % of the weight] more when there are few contents of the alkali chemicals in a developer than 0.005 % of the weight, it is not desirable.

[0070] The organic solvent can also be added to the developer of the printing version original edition of this invention. As an organic solvent which can be added to a developer For example, ethyl acetate, butyl acetate, amyl acetate, benzyl acetate, ethylene glycol monobutyl acetate, A butyl lactate, levulinic-

acid butyl, a methyl ethyl ketone, an ethyl butyl ketone, A methyl isobutyl ketone, a cyclohexanone, an ethylene glycol monobutyl ether, An ethylene glycol monochrome benzyl ether, an ethylene glycol monophenyl ether, Benzyl alcohol, a methylphenyl carbitol, n-amyl alcohol, a methyl amyl alcohol, a xylene, methylene dichloride, ethylene dichloride, a monochlorobenzene, etc. are mentioned.

[0071] The addition of the organic solvent in the case of adding the organic solvent to a developer has 20 or less desirable % of the weight, and especially its 10 or less % of the weight is desirable.

[0072] The need is accepted into the above-mentioned developer further again. A sulfurous-acid lithium, a sodium sulfite, Potassium sulfite, the water-soluble sulfite like a magnesium sulfite, an alkali fusibility pyrazolone compound, Alkali fusibility thiol compounds, the hydroxy aromatic compound like a methyl resorcinol, A polyphosphate, the water softener like an amino polycarboxylic-acid class, isopropyl naphthalene sulfonic-acid sodium, n-butyl naphthalene sulfonic-acid sodium, N-methyl-N-pentadecyl aminoacetic-acid sodium, The various surfactants and the various defoaming agents like lauryl sulfate sodium salt, such as an anionic surfactant, a Nonion nature surfactant, a cation nature surfactant, an amphoteric surface active agent, and a fluorochemical surfactant, can be used.

[0073] Although the thing of the above-mentioned composition is used for the developer used for the image formation method of this invention, the developer the object for negative-mold PS plates marketed or for positive-type PS plates can be used practically. What diluted the object for condensed type negatives marketed or the developer for positives 1 to 1000 times can use it as a developer of the printing version original edition by this invention.

[0074] The printing version original edition by this invention is immersed in a developer, and rinses after that the printing version original edition which wrote in the picture. The temperature of a developer has the desirable range of 15-40 degrees C, and immersing time has a desirable range for 1 second - 2 minutes. A front face can also be ground lightly if needed.

[0075] Processing according [the printing version original edition of this invention which finished development] to the desensitizer of rinsing and/or a drainage system is performed. as the desensitizer of a drainage system -- gum arabic, a dextrin, and a carboxymethyl cellulose -- like -- water-soluble -- solution, such as a water-soluble synthetic macromolecule like naturally-occurring-polymers; polyvinyl alcohol, a polyvinyl pyrrolidone, and a polyacrylic acid, is mentioned, and an acid, a surfactant, etc. are added to the desensitizer of these drainage systems if needed After processing by the desensitizer is performed, it dries and the printing version original edition is used for printing as a printing lithographic plate.

[0076] Burning processing of the above-mentioned printing lithographic plate can be carried out for the purpose of increasing the ****-proof of the obtained printing lithographic plate, and it can also consider as a printing lithographic plate. as burning processing -- ** -- a squeegee is carried out, after rinsing first the printing lithographic plate obtained by the above-mentioned art and removing a rinse and gum liquid ** Subsequently, extend counter etching liquid that there is no nonuniformity in the whole version, and dry it. ** Oven performs burning for 1 - 30 minutes at 180-300 degrees C. ** After rinsing removing counter etching liquid and carrying out gum length, after making a version cool, and drying, it carries out according to the process of considering as the printing version.

[0077] what is chiefly used as solution processed before performing burning processing so that a greasing may not generate counter etching liquid after burning processing -- it is -- as the main component -- a surfactant -- 0.005 - 30 % of the weight has an anionic surfactant and/or a fluorochemical surfactant added, and in pH, 2-11, and since that it is desirable keeps in the range of 3-10, various kinds of acids, alkali, or salts are added by especially preferably

[0078] The surfactant which has a sulfonic group like alkylbenzene sulfonates, alkyl diphenyl-ether disulfon acid chloride, alkyl naphthalenesulfonate, the aldehyde condensate of an alkyl naphthalene sulfonic acid, alpha olefin sulfonate, and alkyl sulfonate as an anionic surfactant used for counter etching liquid, for example; the sulfate system surfactant like a lauryl sulfate, a polyoxyethylene-alkyl-ether sulfate, and a polyoxyethylene-alkyl-phenyl-ether sulfate etc. is mentioned.

[0079] As a fluorochemical surfactant used for counter etching liquid For example, the carboxylate which has a perfluoro alkyl group, the sulfonate which has a perfluoro alkyl group, The anionic

fluorochemical surfactant like the sulfate salt which has a perfluoro alkyl group, and the phosphate which has a perfluoro alkyl group; The amine salt which has a perfluoro alkyl group, The cation nature fluorochemical surfactant like the quarternary ammonium salt which has a perfluoro alkyl group; A perfluoro alkyl carboxy betaine, The amphoteric fluorine surfactant like the aminocarboxylate which has a perfluoro alkyl group; The oligomer which has a perfluoro alkyl group, The Nonion nature fluorochemical surfactant of the sulfonamide polyethylene-glycol addition product which has the polymer which has a perfluoro alkyl group, and a perfluoro alkyl group etc. is mentioned.

[0080] As an acid used for counter etching liquid, a nitric acid, a sulfuric acid, the mineral acid like a phosphoric acid, a citric acid, an amber acid, oxalic acid, a tartaric acid, an acetic acid, a malic acid, a phytic acid, organic phosphonic acid, p-toluenesulfonic acid, a xylene sulfonic acid, etc. are mentioned, for example. Moreover, the lithium salt of these acids, sodium salt, potassium salt, an ammonium salt or the hydroxide of alkali metal, a carbonate, a hydrogencarbonate, etc. can be used for counter etching liquid.

[0081] Furthermore, in counter etching liquid, it is denaturation or the synthetic-macromolecule polymer of a natural product or a natural product, and the high molecular compound which has film forming ability can also be added 0.0001 to 3% of the weight to a total weight. Antiseptics, a defoaming agent, a coloring agent, etc. can also be added in counter etching liquid further again.

[0082] The printing version original edition of this invention is used, the picture exposure machine which used high power type laser, such as an YAG laser and infrared semiconductor laser, as the light source is first equipped with the printing version original edition of this invention as a desirable method of creating a good printing lithographic plate, picture writing is performed for the digital information from a computer on the printing version original edition of a direct this invention, subsequently, a developer performs a development and the non-picture section is removed. Then, after processing with the desensitizer of rinsing and/or a drainage system, it can be made to be able to dry and a printing lithographic plate can be obtained. In addition, although it is easy to be natural [process] even if it carries out one process of this development process of a series of at a time, it is easy to use the auto-processor which can perform these processes continuously practical, and is desirable. [of a thing] Under the present circumstances, the lithography version original edition of this invention does not need the special safety light before and after exposure, but has the feature that work can usually be done under indoor light. Moreover, although it heat-treated after picture writing and before development and the latent image was formed in the conventional printing version original edition, it also has the feature of not needing heat-treatment after picture writing, in the printing version original edition of this invention. The photosensitive constituent of this invention can be used for various uses besides the printing version.

[0083]

[Example] Hereafter, although this invention is further explained to a detail using an example, this invention is not limited to the range of these examples.

[0084] In addition, in the following examples, the dryness solid-content ratio measured and described the sample weight ratio before and behind 1-hour dryness at 130 degrees C of about 1g of samples. Number average molecular weight was measured with gel, osmosis, and the chromatography (it abbreviates to GPC hereafter.), and the molecular weight of polystyrene conversion had and indicated it. Moreover, the particle size of a resin particle was measured by laser-doppler formula particle-size-distribution meter micro truck UPA-150.

[0085] <The synthetic example 1> (synthetic example of acrylic resin (1))

Methyl-ethyl-ketone 400g was taught to the 4 mouth flask of capacity 1L equipped with churning equipment, reflux equipment, a dryness nitrogen introduction pipe with a thermometer, and dropping equipment, and the temperature up was carried out to 80 degrees C. this -- methyl methacrylate 160g, butyl methacrylate 108.8g, 2-hydroxyethyl acrylate 38.36g, 12.84g of acrylic acids, and "currant MOI-BM" (2 (tradename of O-[1'-MECHIRUPUROPIDENAMINO] carboxy aminoethyl) - 80g of methacrylic acids by Showa Denko K.K., and "par butyl O" (tradename of the polymerization initiator by Nippon Oil & Fats Co., Ltd.) the solution which often mixed 8g was dropped over 2 hours.) The

dryness solid-content ratio obtained and number average molecular weight obtained the acrylic resin of 20000 49.7% by continuing churning after dropping for further 15 hours. Hereafter, let this be acrylic resin (1).

[0086] <The synthetic example 2> (synthetic example of acrylic resin (2))

Methyl-ethyl-ketone 400g was taught to the 4 mouth flask of capacity 1L equipped with churning equipment, reflux equipment, a dryness nitrogen introduction pipe with a thermometer, and dropping equipment, and the temperature up was carried out to 80 degrees C. The solution which often mixed styrene 80g, methyl methacrylate 80g, butyl methacrylate 108.8g, 2-hydroxyethyl methacrylate 38.36g, 12.84g of acrylic acids, "MOI-BM" 80g, and "par butyl O" 8g was dropped at this over 2 hours. The dryness solid-content ratio obtained and number average molecular weight obtained the acrylic resin of 20000 49.7% by continuing churning after dropping for further 15 hours. Hereafter, let this be acrylic resin (2).

[0087] <The synthetic example 3> (synthetic example of an aquosity resin (1))

Water was dropped after neutralizing 100g of solutions of the above-mentioned acrylic resin (1) in 22.3g of 1.0M sodium-hydroxide solution. It thickened gradually, viscosity fell remarkably from the time of about 150g water being dropped, and phase inversion completed the resin solution. After adding 150 moreg water, the obtained distributed liquid was heated at 30 degrees C, reduced pressure removal of the excessive water was carried out at the organic-solvent row, and the water dispersing element of the acrylic resin particle of 0.2 micrometers of mean particle diameters was obtained. Water was added to this water dispersing element, and the dryness solid-content ratio was adjusted [dispersing element] to 30%. Hereafter, let this be an aquosity resin (A).

[0088] <The synthetic example 4> (synthetic example of an aquosity resin)

Water was dropped after neutralizing 100g of solutions of the above-mentioned styrene acrylic resin (2) in 22.3g of 1.0M sodium-hydroxide solution. It thickened gradually, viscosity fell remarkably from the time of about 150g water being dropped, and phase inversion completed the resin solution. After adding 150 moreg water, the obtained distributed liquid was heated at 30 degrees C, reduced pressure removal of the excessive water was carried out at the organic-solvent row, and the water dispersing element of the styrene acrylic resin particle of 0.2 micrometers of mean particle diameters was obtained. Water was added to this water dispersing element, and the dryness solid-content ratio was adjusted [dispersing element] to 30%. Hereafter, let this be an aquosity resin (B).

[0089] <The synthetic example 5> (synthetic example of a bridge formation resin particle)

Water was slowly dropped at the solution which could add "TETRAD-X" (poly glycidyl compound by Mitsubishi Gas Chemical Co., Inc.) 0.89g, and 13.4g of 1.0M sodium-hydroxide solution to 100g of solutions of the above-mentioned acrylic resin (1), and was mixed. It thickened gradually, viscosity fell remarkably from the time of about 150g water being dropped, and phase inversion completed the resin solution. After adding 150 moreg water, the obtained distributed liquid was heated at 30 degrees C, and reduced pressure removal of the excessive water was carried out at the organic-solvent row, and subsequently to 80 degrees C, it heated and agitated for 4 hours. The dryness solid-content ratio was adjusted to 30% with water after the reaction end, and the bridge formation resin particle water dispersing element of 0.3 micrometers of mean particle diameters was obtained. Hereafter, let this be an aquosity resin (C).

[0090] After often mixing aquosity (resin A) 40g, "carbon black MA-100" (Mitsubishi Chemical carbon black) 3g, 37g [of water], and isopropyl alcohol 20g obtained in the example 3 of <example 1> composition and adding 1mm glass-bead 180g to this, the paint conditioner was made to distribute for 1 hour. By carrying out filtration removal of the glass bead, the aquosity resin solution which distributed carbon black was obtained. 20g [of this solution], 45g [of water], and isopropyl alcohol 10g was often mixed, and it considered as application liquid.

[0091] After having grained the front face using the water suspension of a nylon brush and PAMISUTON of 400 meshes for the aluminum plate of 0.3mm ** in thickness in B4 wide size, carrying out anode plate acid-number processing by current density 2 A/dm² among 20% sulfuric-acid electrolytic solution subsequently and forming the oxide skin of 2.7 g/m², it rinsed, and it was made to

dry and the base material was obtained.

[0092] After using the bar coating machine of No. 14 and applying previous application liquid to this base material, to it, it was dried for 4 minutes at 60 degrees C, and to it, the printing version original edition of this invention was obtained.

[0093] Picture exposure was performed changing an exposure using this printing version original edition with the test exposure machine (the wavelength of 808nm, output 1W, product made from Line Electron) which carried near-infrared-ray semiconductor laser. After rinsing further using 1:99 diluted solution of the PS plate developer for positives "PD-1" (made in poly chromium Japan) by developing negatives by being immersed for 30 seconds at 30 degrees C, it was made to dry after picture exposure. The sensitivity of this thing is 180 mJ/cm², and the non-picture section exfoliated finely. There is no change in the sensitivity after the promotion preservation stability test after heating the printing version original edition at 60 degrees C for 15 hours, and the dirt of the non-picture section was not seen, either.

[0094] (Examples 2 and 3) In the example 1, it replaced with the water resin (A), and like the example 1, the lithography version original edition was created, it evaluated similarly, and the result was collectively shown in Table 1 except having used a water resin (B) and (C), respectively.

[0095] (Example 1 of comparison) Methyl-ethyl-ketone 400g was taught to the 4 mouth flask of capacity 1L equipped with churning equipment, reflux equipment, a dryness nitrogen introduction pipe with a thermometer, and dropping equipment, and the temperature up was carried out to 80 degrees C. The solution which often mixed styrene 80g, methyl methacrylate 253.44g, 51.32g [of acrylic acids], and butyl methacrylate 15.24g and "par butyl O" 8g was dropped at this over 2 hours. The dryness solid-content ratio obtained and number average molecular weight obtained the acrylic resin solution of 18000 49.5% by continuing churning after dropping for further 15 hours.

[0096] Water was dropped after neutralizing 100g of this acrylic resin solution in 26.7g of 1.0M sodium-hydroxide solution. It thickened gradually, viscosity fell remarkably from the time of about 150g water being dropped, and phase inversion completed the resin solution. After adding 150 moreg water, the obtained distributed liquid was heated at 30 degrees C, reduced pressure removal of the excessive water was carried out at the organic-solvent row, and the resin dispersant of 0.2 micrometers of mean particle diameters was obtained. Water was added to this distributed liquid and the dryness solid-content ratio was adjusted to 30%.

[0097] 40g [of this distributed liquid], "MA-100" (Mitsubishi Chemical carbon black) 3g, 37g [of water], and isopropyl alcohol 20g is often mixed, 1mm glass-bead 180g was added to this, and it was distributed with the paint conditioner for 1 hour. By carrying out filtration removal of the glass bead, the acrylic resin solution which distributed carbon black was obtained. 20g [of this solution], 45g [of water], and isopropyl alcohol 10g was often mixed, and it considered as application liquid.

[0098] The bar coating machine of No. 14 was used and applied to the base material obtained at the same process as an example 1, previous application liquid was dried for 4 minutes at 60 degrees C to it, and the printing version original edition of the example of comparison was obtained to it. Picture exposure was performed changing an exposure using this printing version original edition with the test exposure machine (the wavelength of 808nm, output 1W, product made from Line Electron) which carried near-infrared-ray semiconductor laser. After rinsing further using 1:99 diluted solution of the PS plate developer for positives "PD-1" (made in poly chromium Japan) by developing negatives by being immersed for 30 seconds at 30 degrees C, it was made to dry after picture exposure. The sensitivity of this thing is 180 mJ/cm², and the non-picture section exfoliated finely. There is no change in the sensitivity after the promotion preservation stability test after 15-hour heating at 60 degrees C about the printing version original edition, and the dirt of the non-picture section was not seen, either.

[0099] (Example 2 of comparison) Acrylic resin (1)24g, "MA-100" (Mitsubishi Chemical carbon black) 3g, and methyl-ethyl-ketone 23g obtained in the synthetic example 1 are often mixed, 1mm glass-bead 90g was added to this, and it was distributed with the paint conditioner for 1 hour. By carrying out filtration removal of the glass bead, the acrylic resin solution which distributed carbon black was obtained. 10g of this solution was diluted with methyl-ethyl-ketone 20g, and it considered as application liquid. Used and applied the bar coating machine of No. 20 to the base material obtained at the same

process as an example 1, it was made to dry for 4 minutes at 60 degrees C, and the printing version original edition was obtained. The dryness coverage was 2.0 g/m². It did not exfoliate, although this printing version original edition was immersed for 30 seconds at 30 degrees C using 1:99 diluted solution of the PS plate developer for positives "PD-1" (made in poly chromium Japan). Further, It did not exfoliate, although immersed for 1 minute at 30 degrees C using 1:9 diluted solution of a developer "PD-1."

[0100] (Printing test) The picture was written in in the amount of energy of the sensitivity for which each printing version original edition needs the printing version original edition obtained in examples 1-3 and the example 1 of comparison using a test exposure machine (the wavelength of 808nm, output 1W, product made from Line Electron), after that, carry out a development, rinse, it was made to dry on the same conditions as an example 1, and the printing lithographic plate was obtained.

[0101] Thus, the printing machine (TOKO 820L:Tokyo aircraft instrument company make) was equipped with the obtained printing lithographic plate, respectively, and the printing test was carried out. As printing conditions, the printing test was carried out a print-speed:3000 sheet/hour the print sheet:Jujo diamond coat B4, the ink:GEOS-G red S (Dainippon Ink & Chemicals, Inc. make), and under dampening water:NA108W (1:50 dilution, Dainippon Ink & Chemicals, Inc. make). In the examples 1-3, 10000 printed matter did not have problems, such as quality, and although it was good printed matter, in the example of comparison, dirt was slightly accepted in printed matter from the neighborhood which passed over 5000 sheets.

[0102]

[Table 1]

	感度(MJ/cm ²)	保存安定性(60℃、15 時間)	印刷テスト
実施例 1	1 8 0	良好	1 0 0 0 0
実施例 2	1 8 0	良好	1 0 0 0 0
実施例 3	1 6 0	良好	1 0 0 0 0
比較例 1	1 8 0	良好	5 0 0 0

[0103]

[Effect of the Invention] The printing version original edition which has the photosensitive layer which consists of a photosensitive constituent of this invention is excellent in ****-proof as compared with the case where the photosensitive constituent which used the water resin without a block isocyanate machine is used using a water resin. Moreover, the printing version original edition which has the photosensitive layer which consists of a photosensitive constituent of this invention can be engraved without preheating after laser writing, and its sensitivity is also good.

[Translation done.]